



2014/2024 Review

Columbia River Treaty

Overview of Treaty Review Process **January 31, 2013**

For

Central Asia Cross Border Water Management **Exchange Visit** **to the United States and Canada**



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Discussion Topics

1. Review Process and Requirements
 - a) Studies and Work to Date
 - b) Remaining work and Schedule
 - c) Process for formulating and evaluating Treaty alternatives
2. Regional work with Sovereign and Non-Sovereign Interests
 - a) The Sovereign Review Process
 - b) Developing a Non-sovereign Stakeholder Outreach Plan
3. Challenges and Lessons Learned

Columbia River Treaty 2014 / 2024 Review

Description

Studies jointly conducted by USACE and BPA on behalf of the U.S. Entity in collaboration with regional Sovereigns and stakeholders to evaluate the benefits and costs associated with alternative Treaty futures.

Purpose

Enable the U.S. Entity to make an informed recommendation, in collaboration with the regional sovereigns and stakeholders, to the U.S. Dept of State as to whether or not it is in the best interest of the U.S. to continue, terminate, or seek to amend the Treaty.

Columbia River Treaty 2014/2024 Review Program Scope

Work Completed to Date

- 2008 – CRT 2014/2024 Review Initiated
- Jul 2010 - Phase 1: U.S./Canadian Entities Joint Technical Studies completed
- Sept 2010 - U.S. Entity Supplemental Studies completed (public release)
- Oct 2010 - Sovereign Review Team convened
- Nov 2011 - 1st round of public listening sessions completed

Columbia River Treaty 2014/2024 Review Program Scope

Work Completed to Date

- Jun 2012 - Iteration 1 studies completed
- Aug 2012 - 2nd round of public listening sessions completed
- Oct 2012 - Iteration 2 alternatives formulated
- Dec 2012 - Iteration 2 hydroregulation modeling completed

Columbia River Treaty 2014/2024 Review Program Scope

Work Currently Underway & Planned

- Mar 2013 - Complete Iteration 2 impact assessment
- Apr 2013 - Formulate Iteration 3 alternatives
- May 2013 - Complete 3rd round of public listening sessions
- Jul 2013 - Complete Iteration 3 modeling and impact assessment
- Sep 2013 - Draft U.S. Entity recommendation for regional vetting
- Dec 2013 - U.S. Entity recommendation to U.S. Department of State

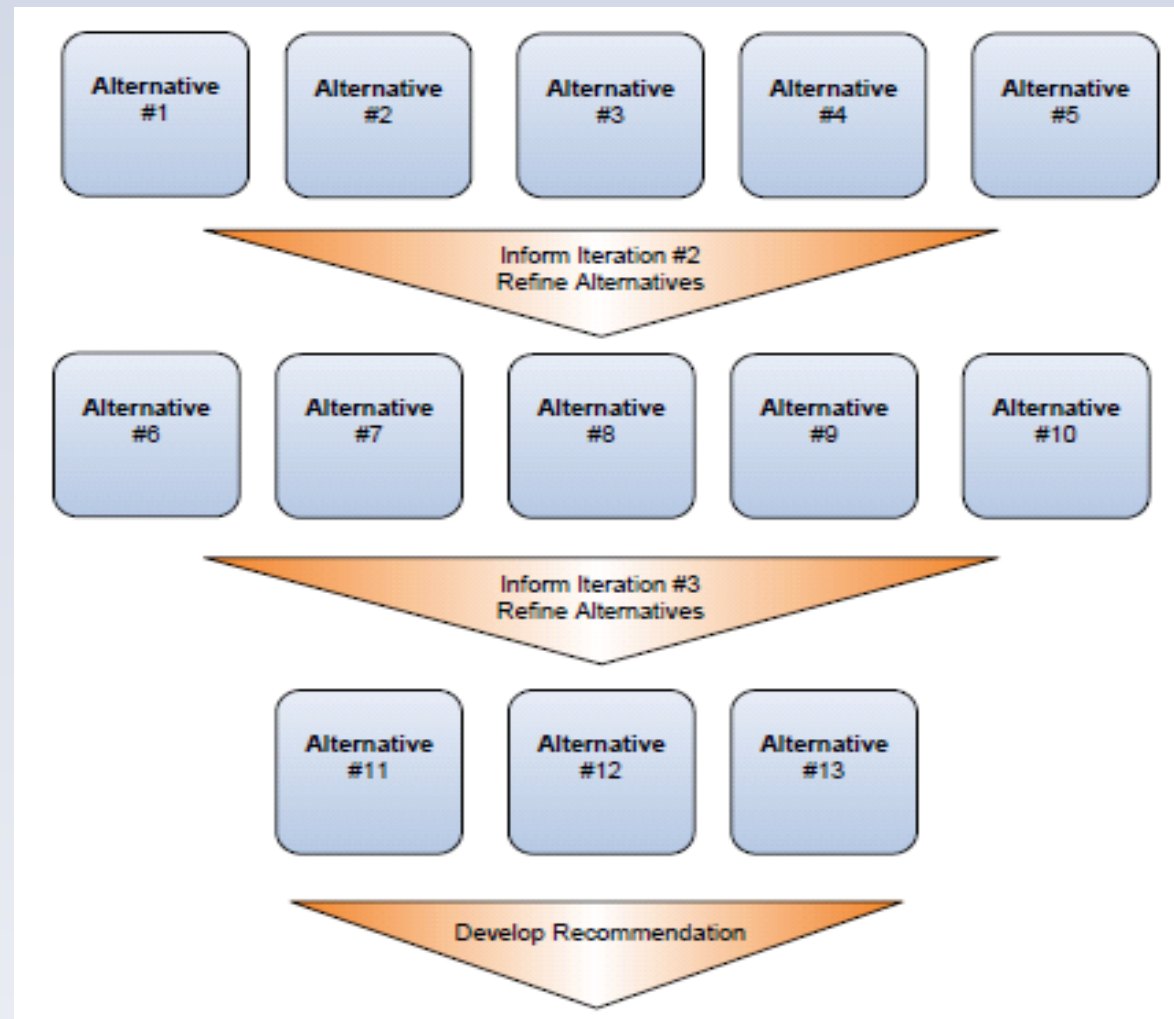
Columbia River Treaty 2014/2024 Review Program Scope

Work Currently Underway & Planned

- Continued ongoing coordination and engagement with:
 - Regional U.S. Federal agency team
 - Sovereign Review Team and Sovereign Technical Team
 - Non-sovereign stakeholder interests
 - U.S. Departments of State, Energy, and Defense
 - Canadian Entity

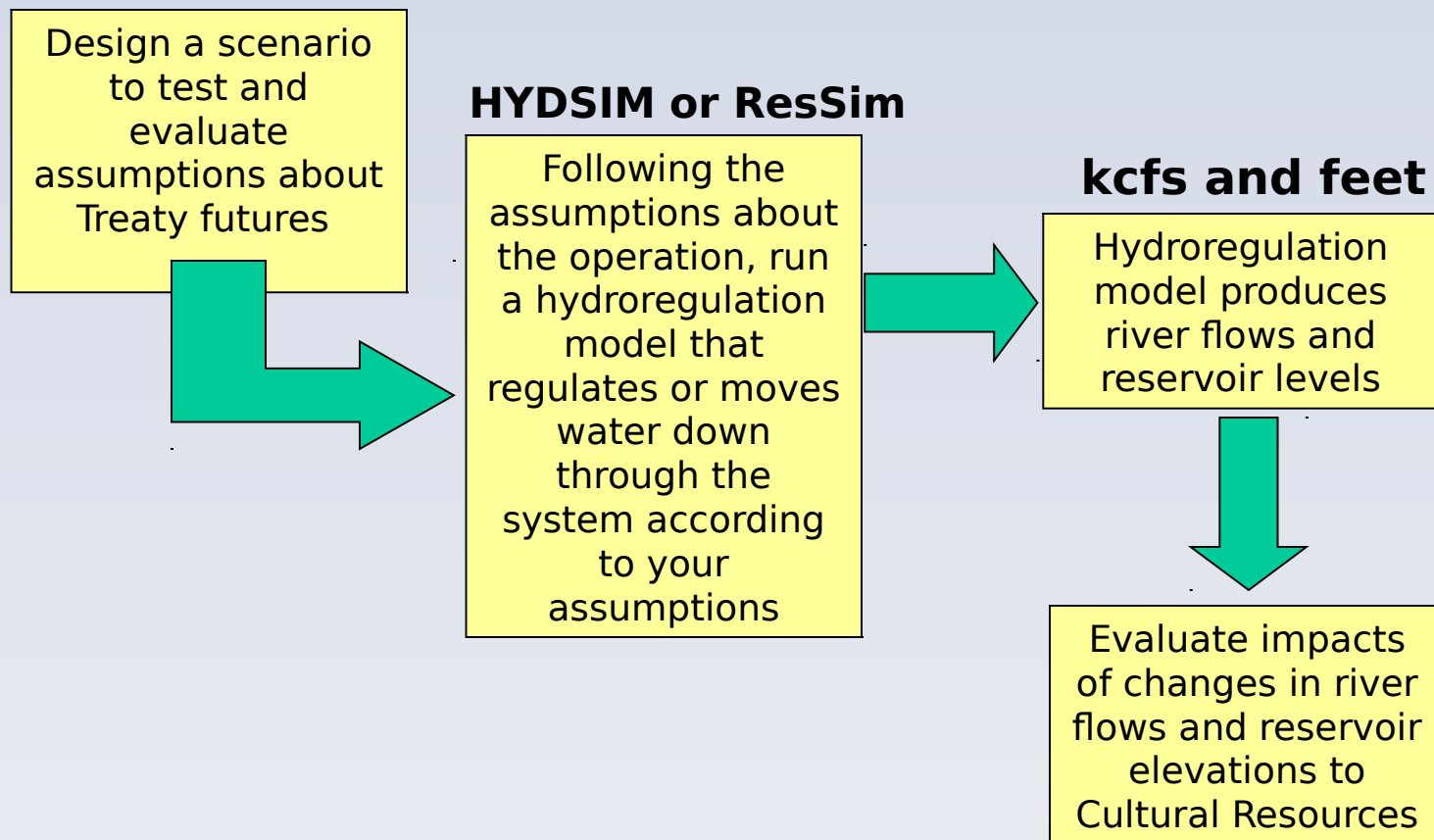
Formulation and evaluation of is being done in three rounds of modeling or “iterations”

- **Each iteration tests a number of scenarios or “alternatives.”**
- **Information from each iteration used to refine approach and build scenarios for the next iteration.**



Process for formulating and evaluating alternatives...

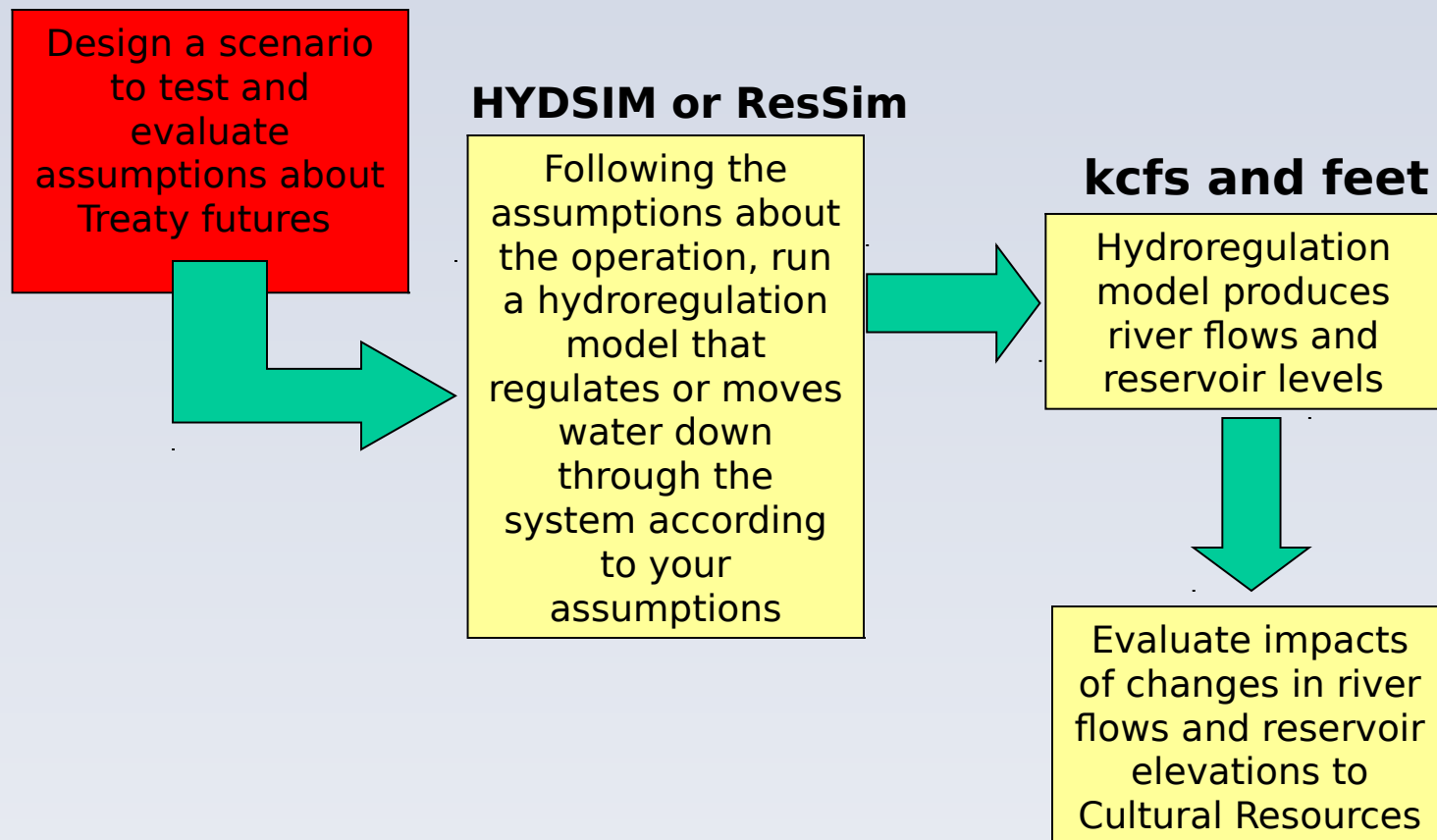
Scenario 1*



*Eventually may be 5-8 alternatives developed in this Review effort

Process for formulating and evaluating alternatives...

Scenario 1*



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Building the Scenarios: Examples of operational assumptions

1. Flood Risk

- a) Change in level of risk (keep less space in reservoirs for capturing spring runoff)
- b) Change in level of protection (change the level you are trying to control flows to at key flood risk locations)

2. Power Operation

- a) Change in energy use and other energy resources (wind generation, more regional energy plants)
- b) Look at U.S. generation with and without the Treaty

3. Ecosystem-Based Function

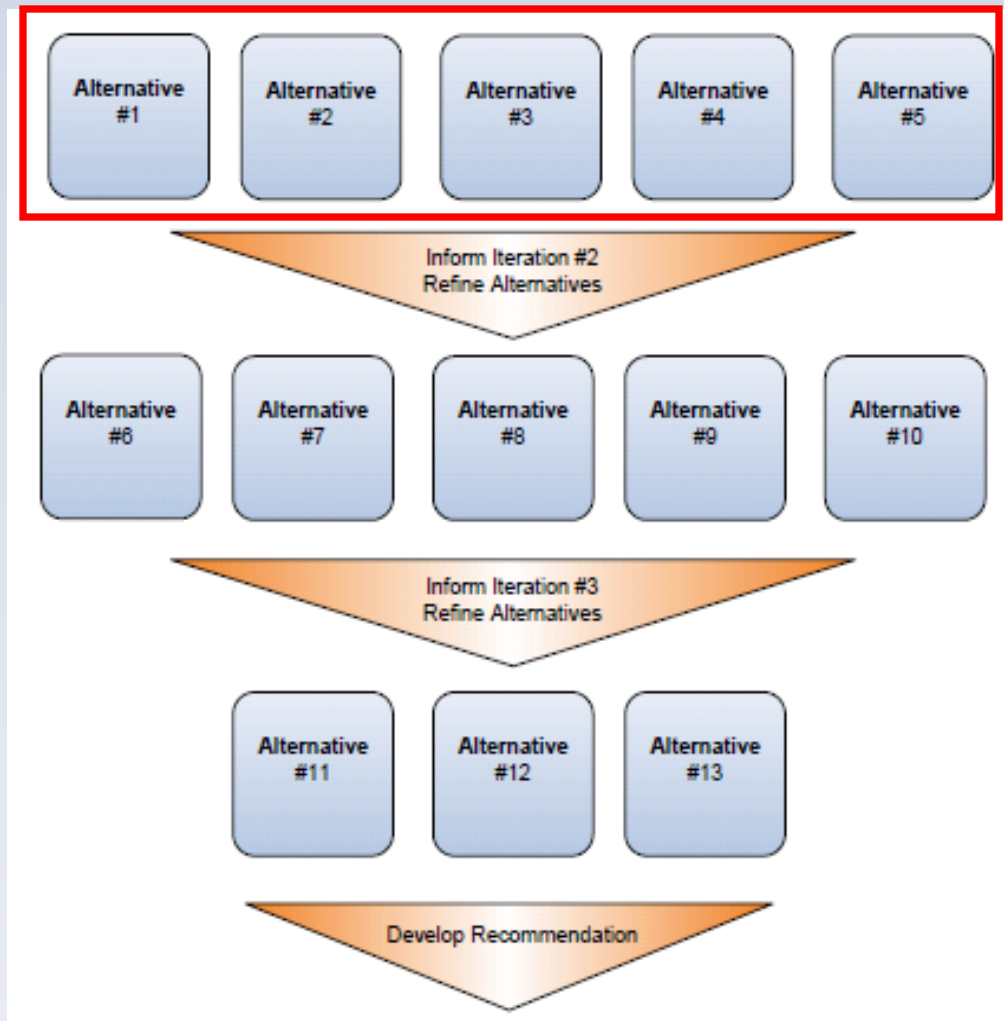
- a) Additional flows for fish in the spring and summer
- b) Less fluctuation in reservoir levels

Building the Scenarios: Examples of operational assumptions

4. If the Treaty is Terminated, how might Canada operate its reservoirs?
 - a) Optimize hydropower generation to meet forecast Canadian loads
 - b) Fuller, more stable reservoirs for ecosystem or recreation benefits
5. How might future global climate change affect regional hydrology and Treaty operations?

Iteration 1 Overview

- Hydroregulation modeling completed June 2012
- Modeled Reference Case or how we operate now
- Modeled 2 approaches or levels for flood risk
- Looked at these 2 approaches both with and without the Treaty



We are currently working on Iteration 2

1. Alternatives:

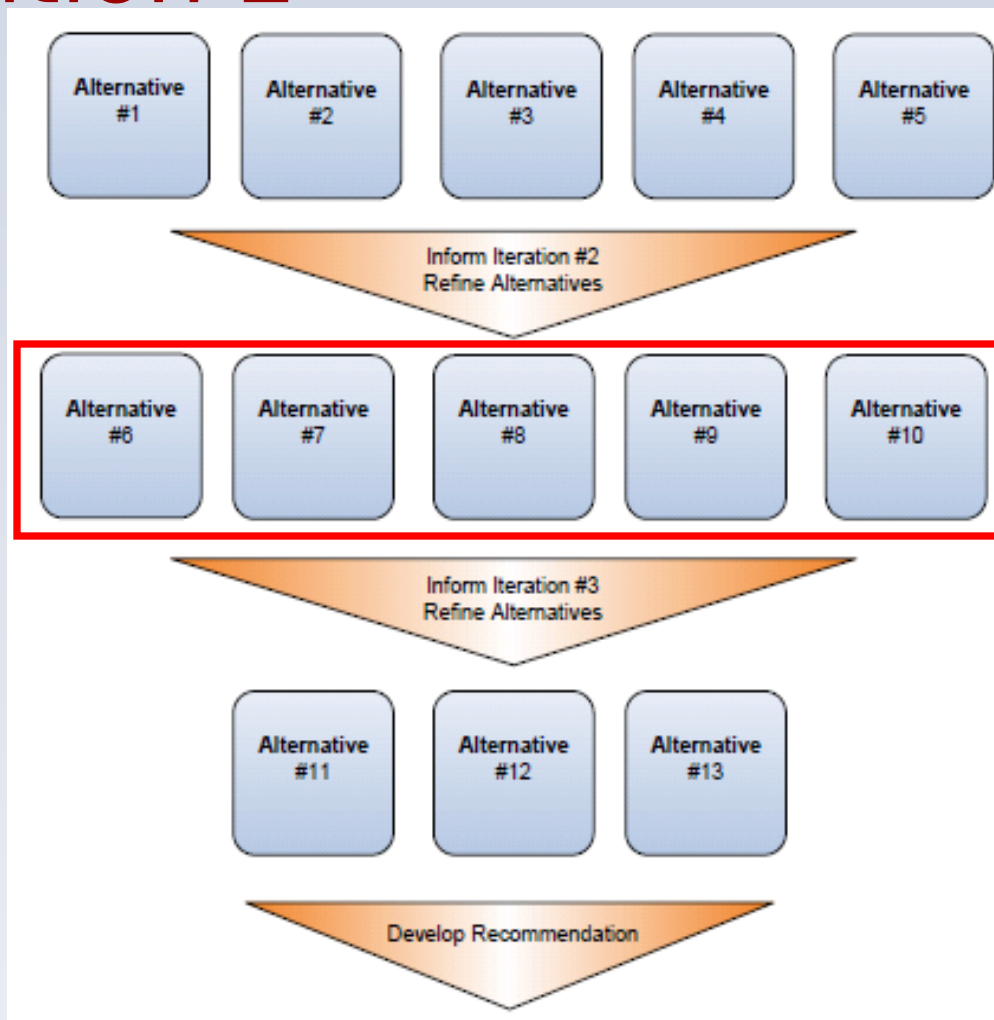
A system of operational, structural and/or non-structural measures formulated to meet the identified study objectives subject to study constraints.

2. Components:

formulated to meet to meet only one of the primary driving purposes: Ecosystem-based function, Flood risk or Hydropower.

Not stand-alone alternatives to be implemented; rather, “bookends” meant to understand operation of the system for a single purpose

Components may be combined into alternatives in Iteration 3



Iteration 2 Alternatives

Alternatives:

- a. 4 alternatives carried forward from Iteration 1 for full impact assessment
 - a. Current Condition (RC-CC)
 - b. Treaty Continues with 450 and 600 flood flow objectives (1A-TC and 2B-TC)
 - c. Treaty Terminates with 450 flood flow objectives (1A-TT)
- b. 3-5 Treaty Terminates Canadian Operations scenarios
- c. 2 Climate Change scenarios incorporated into Treaty Continues alternatives

Iteration 2 Components

1. Flood Risk

- a) different flood control operations at US and Canadian reservoirs
- b) No Called Upon of Canadian reservoirs
- c) Improvements to U.S. levee systems

2. Hydropower

- a) optimized joint U.S and Canadian hydropower system
- b) optimized joint U.S and Canadian hydropower system and Current Biological operating requirements

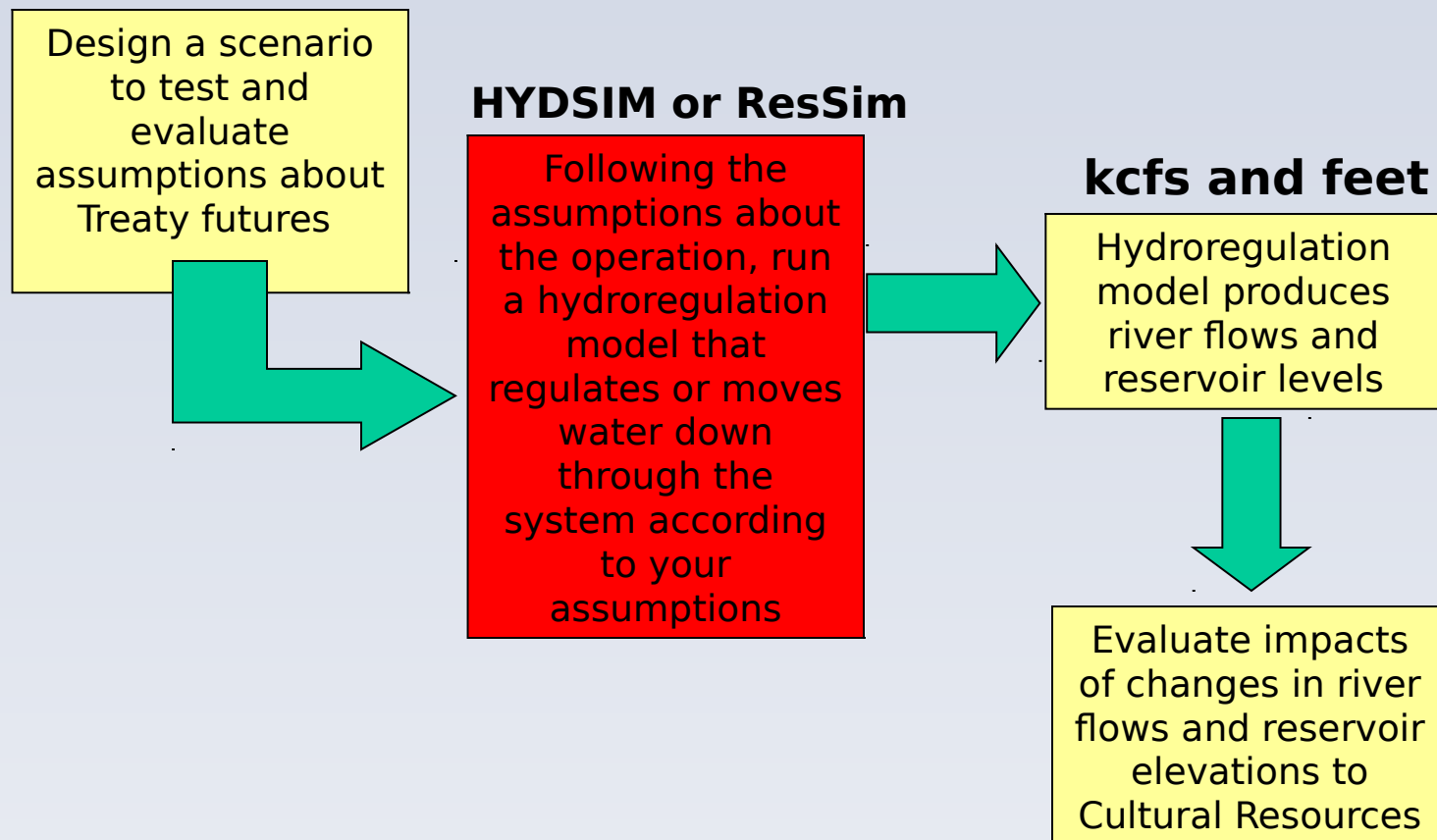
Iteration 2 Components

3. Ecosystem Function

- a) more normative hydrograph
- b) more stable reservoir elevations and flows
- c) improved summer fish migration flows
- d) dry year operations
- e) reconnected floodplains

Process for formulating and evaluating alternatives...

Scenario 1*

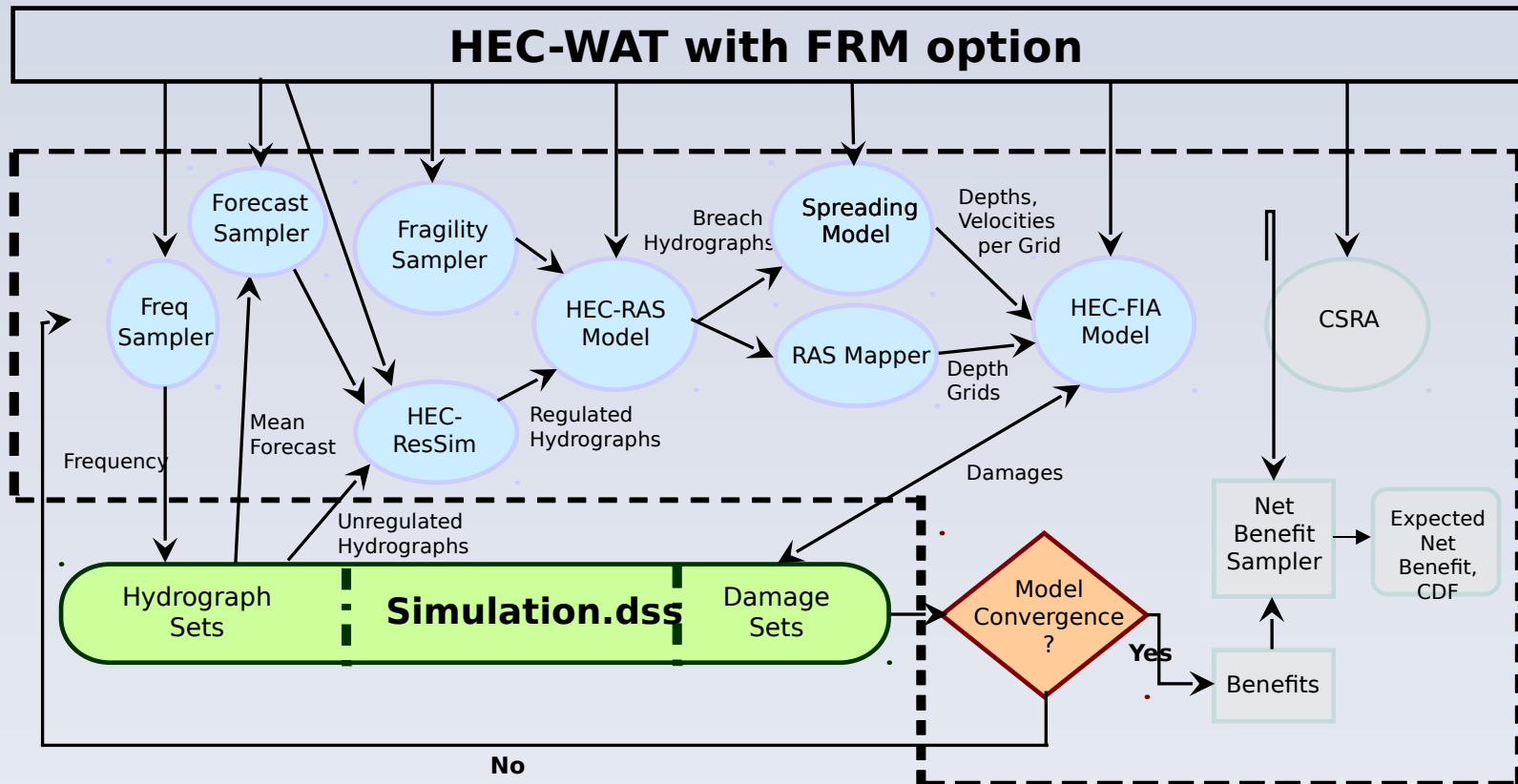


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Hydroregulation Modeling

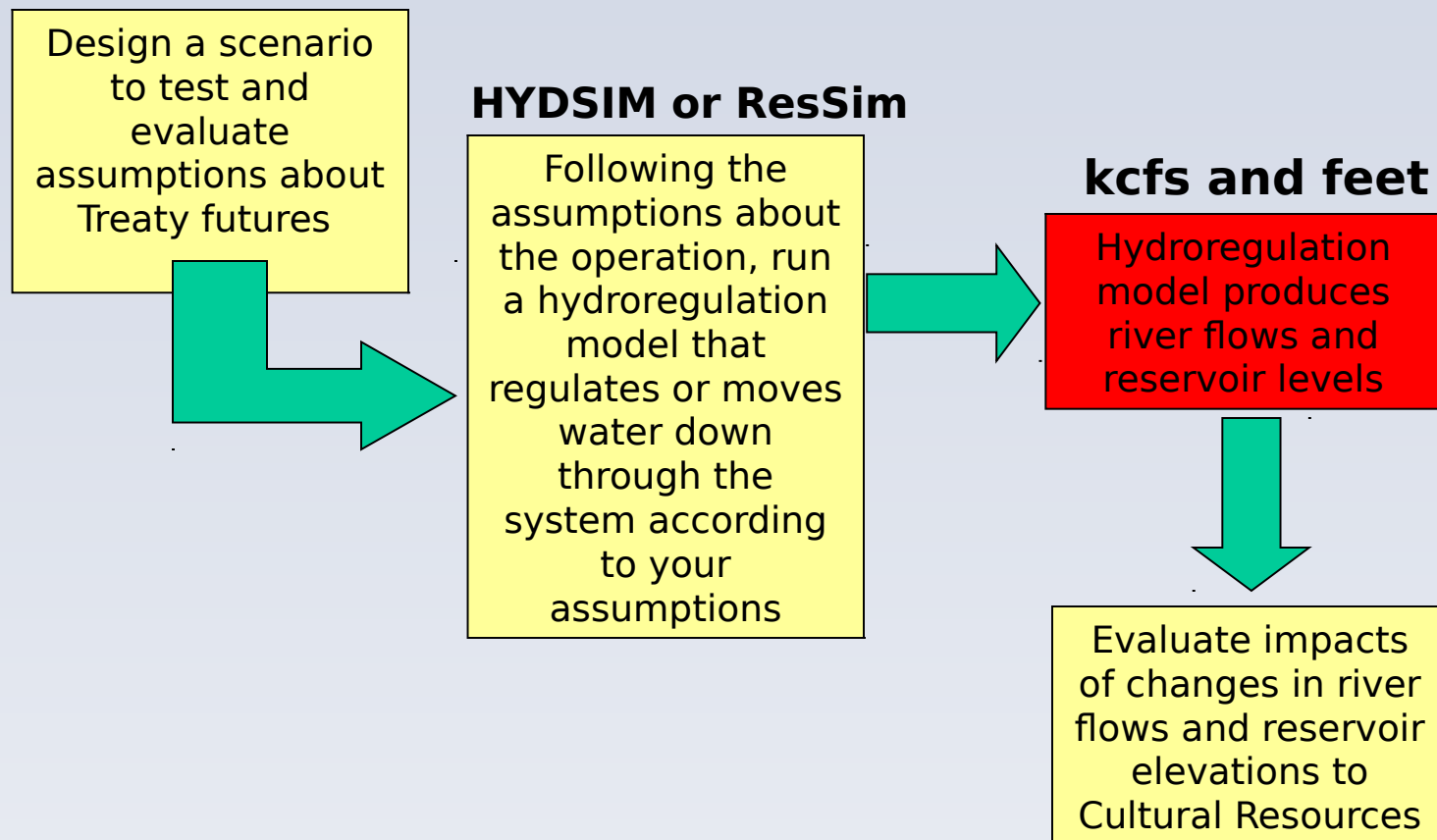
1. Takes assumptions and conditions defined by the Sovereign Review Team and Sovereign Technical Team with input from stakeholders.
2. Runs 70 historic years (1929-1998) of river flow through the model to see how assumed operations react to different historic water conditions.
3. Hydroregulation results provide information at key points for:
 - a) River flow (kcfs)
 - b) Reservoir Elevation (feet)
 - c) Amount of spill at each dam (kcfs)
 - d) Generation (Megawatts)
 - e) Peak flows (kcfs)

HEC-WAT Structure - FRM



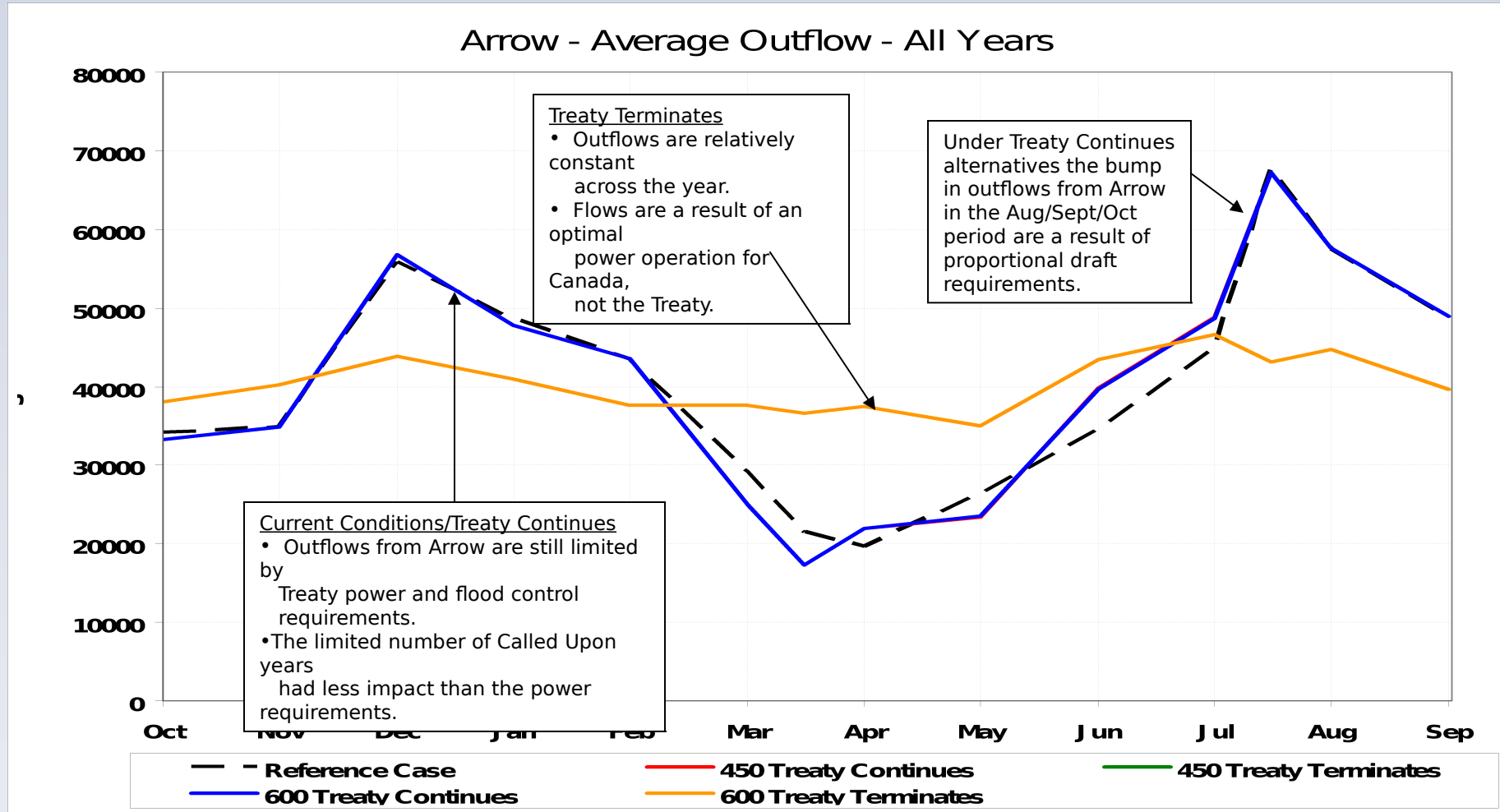
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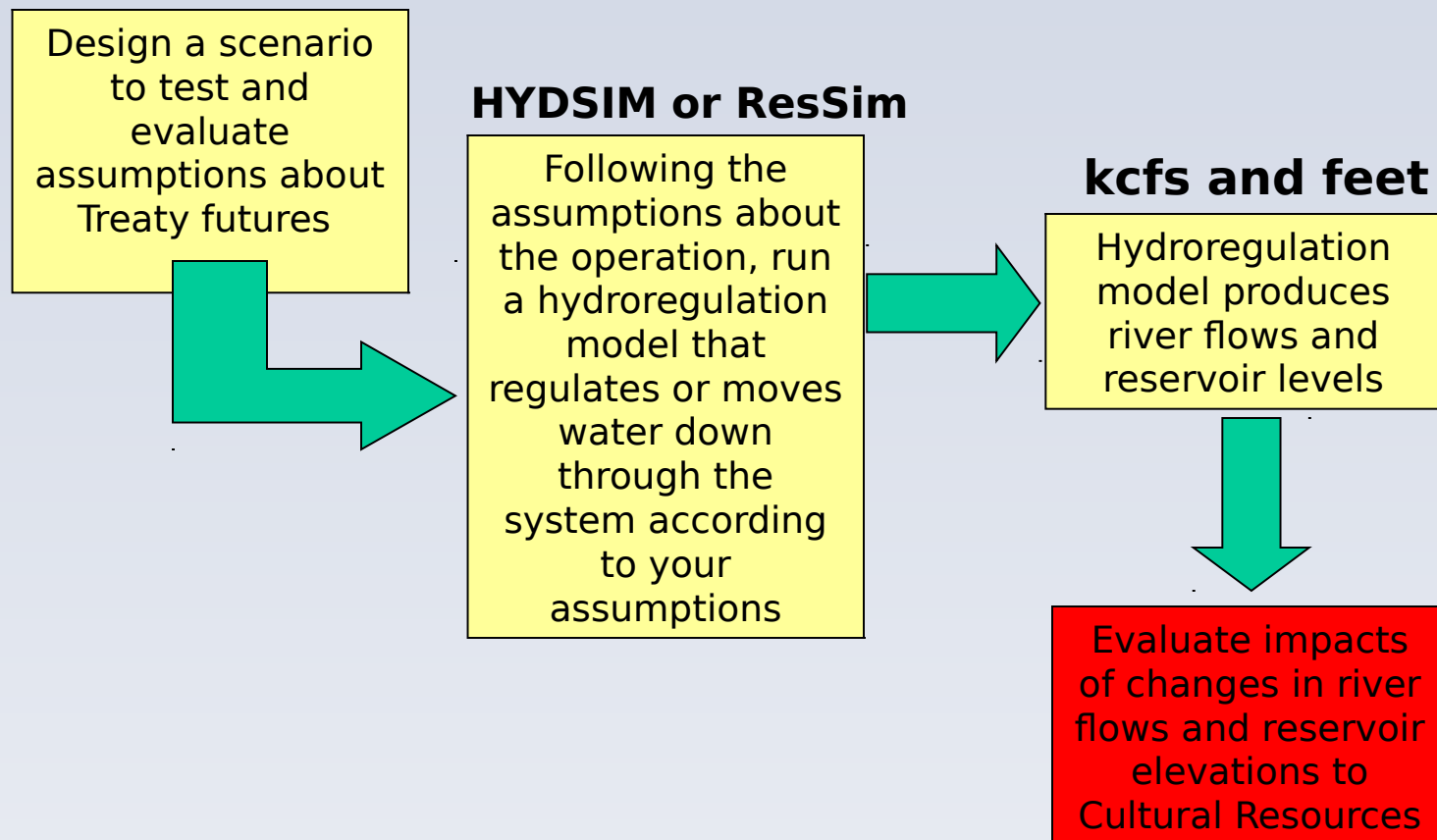
Example of Hydroregulation Outputs



Assumed Canadian operations for Treaty Terminates alternatives had a substantial effect on the outcome of the studies, with implications for fish flows.

Process for formulating and evaluating alternatives...

Scenario 1*



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Iteration 2 Impact Assessment

Two types:

1. Qualitative Analysis using hydroregulation results (river flows, reservoir elevations, etc.) to compare and contrast impacts on river uses and outputs
 - ◆ Example: for Recreation, relative frequency (number of days) that boat ramps are available based on changing reservoir elevations.

Iteration 2 Impact Assessment

Two types:

2. Quantitative Analysis using secondary numeric or physical models in which hydroregulation results are model inputs.
 - ◆ Examples:
 - ◆ for water quality, Temperature and Total Dissolved Gas models
 - ◆ Life cycle models for anadromous fish

Iteration 2

Impact Assessment Categories

- ◆ Ecosystem based Function
 - Water Quality
 - Resident Fish
 - Anadromous Fish
 - Estuary
 - Wildlife
 - Cultural Resources
- ◆ Flood Risk Management
- ◆ Hydropower
- ◆ Water Supply
- ◆ Recreation
- ◆ Navigation
- ◆ Sediment and Toxics

The Sovereign Participation Process

Purpose

- Provide a means for the U.S. entity to consult with regional sovereigns and stakeholders regarding the future of the Columbia River Treaty
- Establish a framework for sovereign parties to collaborate and coordinate with the U.S. Entity in the process of:
 - Conducting technical studies; and,
 - Developing and evaluating alternatives needed to better understand potential Treaty futures

The Sovereign Participation Process

Objective

- Enable the U.S. Entity and regional sovereigns to make an informed recommendation to the U.S. Department of State as to whether or not it is in the best interest of the U.S. to:
 - continue the Treaty,
 - terminate the Treaty, or
 - seek to negotiate with Canada on amendment of the Treaty

Sovereign Review Team (SRT)

- October 2010: SRT formed convened by request of U.S. Entity to regional sovereigns
- July 2011: Sovereign Participation Process Document Approved by SRT
- It took 7 months for the SRT members to come to agreement on how they would collaborate with each other on the Treaty Review

Who Are the “Sovereigns” in the Columbia River Basin?

1. U.S. Federal Government
 2. States
 3. Federally Recognized Native American Tribes
- Sovereign entities are political bodies that have autonomous political authority within a given geographic territory

Who Are the “Sovereigns”?

1. Ten U.S. Federal Government Agencies with water and related land management responsibilities in the Columbia River Basin
 - a) Department of the Army
 - Corps of Engineers
 - b) Department of Energy
 - Bonneville Power Administration
 - c) Department of Interior
 - Bureau of Reclamation
 - Bureau of Indian Affairs
 - Fish and Wildlife Service
 - National Park Service
 - Geologic Survey
 - d) Department of Commerce
 - d) National Marine Fisheries Service
 - e) Department of Agriculture
 - d) Forest Service
 - f) Environmental Protection Agency

Who Are the “Sovereigns”?

2. Four States in the Columbia River Basin

- Oregon
- Washington
- Idaho
- Montana
- SRT members designated by state Governors
- All current SRT members representing the 4 states are also members of the Pacific NW Power and Conservation Council

Who Are the “Sovereigns”?

3. Federally Recognized Native American Tribes

- Coalition of 15 Tribes Represented by 5 Tribal Organizations
 - Columbia River Intertribal Fish Commission
 - Upper Columbia United Tribes
 - Upper Snake River Tribes
 - Confederated Salish and Kootenai Tribe
 - Cowlitz Tribe





Sovereign Participation Process Principles

1. Open and transparent process;
2. Use sound information, best available science, and sovereign and stakeholder input;
3. Efficient consensus-driven decision-making process;
4. Seek regional consensus but U.S. Entity retains authority to make a recommendation to the U.S. Department of State.
5. In the event of non-consensus, each sovereign party may exercise their own authorities to make recommendations on their own

Sovereign Participation Process Principles

6. Develop and meet realistic timelines;
7. Reflect the missions of the U.S., including trust obligations to tribes, while recognizing the interests of the basins sovereigns and stakeholders; and,
8. Informed and balanced recommendation to the U.S. Department of State whether or not it is in the best interest of the U.S. to:
 - continue the Treaty,
 - terminate the Treaty, or
 - seek to negotiate with Canada on amendment of the treaty

Sovereign Participation Process Agreement

Sideboards

1. Design alternatives, evaluation criteria and impact assessments to support the Treaty recommendation.
2. Focus Treaty Review on operation of U.S. and Canadian Reservoirs.
3. Formulate alternatives around three primary driving purposes: hydropower, flood risk management and ecosystem function.
4. Assess impacts of Treaty alternatives on other river uses: irrigation, recreation, navigation, water supply, water quality.

Sovereign Participation Process Agreement

Sideboards

5. Ecosystem function alternatives evaluated based on water flow and timing, reservoir levels, water quality...
6. Use existing models or tools and data available within the limited timeframe.
7. Alternatives inclusive of each sovereign's interests but limited to a reasonable number.
8. Current regulatory and statutory requirements will be the default but will not necessarily constrain alternatives.
9. Future climate change will be integrated into alternatives evaluation.

Sovereign Participation Process Agreement

Other Key Items:

- Planning Objectives
- Team Structure and Organization
- Tenets of Participation
- Meeting Management
- Process Documentation
- Issue Resolution Process and Triggers
- Coordination with regional Non-Sovereign Stakeholders

Who Are the “Non-sovereign” Interest Groups?

- Private and Public Power Utilities
- Cities and Counties
- Navigation Industry (ports, shippers, barge operators)
- Floodplain and Emergency Management Organizations
- Irrigators
- Municipal water supply interests
- Environmental Groups
- Universities, Academia
- Recreational users

Challenges and Lessons Learned

1. The Columbia River Basin is a very large geographic area with a highly developed and complex system of operating water resource projects and many interacting purposes and outputs.
2. As the downstream nation, the challenges and issues facing the U.S. are more complex than those of Canada and hence the Treaty decision is more complex.
3. Establishing and consistently maintaining rules for multiple sovereign parties to collaborate.
4. Formulating a reasonable set of operating scenarios and alternatives that test the range of regional sovereigns interests.

Challenges and Lessons Learned

5. Providing fair opportunities for non-sovereign stakeholders to have input into the process of formulating alternatives and conducting impact assessment.
6. Scoping analytical tools and impact assessment studies at a level of detail appropriate for a high level Treaty recommendation.
7. Establishing decision criteria for transitioning from one iteration of alternatives to the next, and for making the ultimate recommendation.
8. Clearly stating and/or defining the policy issues that will have to be addressed by decision-makers to get to regional concurrence on a Treaty recommendation.

QUESTIONS?